

CLAIMS

1. A metal evaporation heating element characterized by having one or more grooves in a direction not in parallel with a current direction, on an upper surface of a ceramic sintered body comprising titanium diboride (TiB_2) and/or zirconium diboride (ZrB_2), and boron nitride (BN), wherein the groove has a width of from 0.1 to 1.5 mm, a depth of from 0.03 to 1 mm and a length of at least 1 mm.
2. The metal evaporation heating element according to Claim 1, characterized by having at least two grooves with a distance of at most 2 mm.
3. The metal evaporation heating element according to Claim 1 or 2, characterized in that the number of grooves is at least 10.
4. The metal evaporation heating element according to any one of Claims 1 to 3, characterized in that the direction not in parallel with the current direction makes an angle of from 20 to 160° with the current direction.
5. The metal evaporation heating element according to Claim 4, characterized in that the grooves are crossed so as to form at least one intersection.
6. The metal evaporation heating element according to any one of Claims 1 to 5, characterized in that the ceramic sintered body has a cavity, and the groove is formed on the bottom surface of the cavity and/or on the upper surface of the ceramic sintered body.

7. The metal evaporation heating element according to any one of Claims 1 to 6, characterized in that a pattern is drawn by a plurality of grooves on the bottom surface of the cavity and/or on the upper surface of the ceramic
5 sintered body.

8. The metal evaporation heating element according to Claim 7, characterized in that the area ratio occupied by the pattern is at least 30% to the bottom surface area of the cavity with respect to one having a cavity, or to the
10 upper surface area of the ceramic sintered body with respect to one having no cavity.

9. The metal evaporation heating element according to Claim 8, characterized in that the area ratio occupied by the pattern is at least 50%.

15 10. The metal evaporation heating element according to Claim 8, characterized in that the area ratio occupied by the pattern is at least 80%.

11. The metal evaporation heating element according to any one of Claims 1 to 10, characterized in that in one
20 groove, or between different grooves, a significant difference is provided in the depth of the groove.

12. The metal evaporation heating element according to Claim 11, characterized in that the significant difference in the depth of the groove is at least 10%.

25 13. The metal evaporation heating element according to Claim 11 or 12, characterized in that among a plurality of grooves, the groove having the deepest portion is

provided at a center portion in the longitudinal direction of the ceramic sintered body or in the vicinity thereof.

14. The metal evaporation heating element according to
5 any one of Claims 11 to 13, characterized in that among the plurality of grooves, the groove having the shallowest portion is provided at one end or each end in the longitudinal direction of the ceramic sintered body.

15. The metal evaporation heating element according to
10 any one of Claims 11 to 14, characterized in that {(depth of the deepest portion of the groove) - (depth of the shallowest portion of the groove)} is at least 0.005 mm.

16. A method for evaporating a metal, characterized by using the metal evaporation heating element as defined in
15 any one of Claims 1 to 15 and heating a metal in vacuum in a state where the metal is in contact with part or all of the groove.